



# RC CRAFT CHALLENGE RULEBOOK



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# RULEBOOK

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### 1.0 Competition Overview

The RC Craft challenge is an exhilarating event where enthusiasts showcase their piloting skills and creativity in designing and flying remote-controlled aircraft. Participants navigate through challenging courses, execute thrilling maneuvers, and compete for precision and speed. It's a captivating display of innovation and passion for aviation.

The teams build an aerodynamically sound RC Plane within specified dimensions to achieve successful flight. The RC plane should take off, land, and perform maneuvers. The competition consists of three rounds: two elimination rounds and a final round. The performance of each RC Plane in all rounds is evaluated individually. The team with the highest score in the final round is declared as the winner.

### 2.0 The Team

Tournament Teams and Team members are subject to the following:

#### 2.1.0 Team Name

All team names must be approved by Technoxian. The team name must be unique and not be identical or very similar to the name of a previously-registered team. The name also cannot be identical or very similar to any commercially-trademarked name. Technoxian reserves the right to require the renaming of any team whose name it deems inappropriate, offensive, or conflicting. Once a team has been accepted for entry into the tournament, the team's name cannot be changed, unless they receive written permission from Technoxian.

#### 2.2.0 RC Aircraft Pilot

An individual may participate as a pilot for a team. A maximum of 10 members. The member who flies the aircraft is called the Pilot.

#### 2.3.0 Team Technical Expertise

One member or a combination of members of the team must have knowledge and understanding of all the technical aspects of the RC Aircraft.

### 3.0 The Flying Zone

#### 3.1.0 Field Dimensions

The field area would be approx. 200 m<sup>2</sup>. There are marked/specified regions/spots to take off and land the aircraft. Hurdles will be placed at different locations in the flying zone and also the arrows marked to depict the maneuvering path. Specific exceptions will be defined in the ground for changing the batteries, adjusting gains, and calibration settings.



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### 4.0 The Aircraft

The team has to design and construct an aircraft as per given specifications. Commercial aircraft kits won't be allowed. Following specifications and rules address many well-known safety issues of aircraft, but are not expected to cover all design possibilities. The team should give thought to their designs and use common sense, and be aware that the inspection team will inspect and assess aircraft for compliance with the safety requirements on the day of the competition.

- The complete aircraft dimensions should be of wingspan of minimum 100cm to maximum 150cm.
- Aircraft weight including battery should not be more than 4kg.
- There is no restriction on the use of any material or specification for the aircraft body and wings.
- Use of Gearboxes, Belt Drive Systems, and Propeller Shaft extensions are allowed.
- Team can use Electric Motor Propulsion only, with a single motor configuration.
- The aircraft must be powered by commercially available Lithium-Polymer battery packs.
- Separate battery for the radio system must have a minimum capacity of 1000mAh.

### 5.1.0 Referee

Each round of competition is controlled by the referee. He has full authority to enforce the rules of the competition to which he has been appointed. Referees observe and supervise the competitors before, during, and after challenges and give final scoring and make decisions. The referee is encouraged to use the designated walking area next to the field. The decisions of the referee regarding facts connected with play are final.

The referee may only change a decision on realizing that it is incorrect or, at his discretion, on the advice of an assistant referee, provided that he has not restarted play.

The referee is not held liable for any kind of injury suffered by an official or spectator, any damage to property of any kind, nor any other loss suffered by an individual, club, organization, institution, or other body.

Note: The captain is the only team member that may talk to the referee.

- Duties of the Referee:
  - Starting competition and stopping competition early.
  - Declaring a win.
  - Declaring and administering timeouts.
  - Watching for safety violations.
  - Ensuring a safe competition for all participants and aircraft.
  - Ensuring a fair competition according to the rules.
  - Ensuring there is no interference by unauthorized persons or team members.



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- If at any time before or during a competition, a Referee observes disruptive or other in appropriate behaviour by any Operator or Team support person in or around the area of competition, he Referee has the authority to require that person to leave the area immediately."

## 5.2.0 Assistant Referee

The assistant referee supports the referee wherever he can. He is encouraged to use the designated walking area, opposite the referee. No team members are allowed to talk to the assistant referee.

Duties:

- The assistant referee indicates when misconduct or any other incident has occurred out of the view of the referee.
- The assistant referee discusses unclear situations with the referee.

## 5.3.0 Aircraft Pilot

Before the start of the competition, every team has to designate an Aircraft Pilot and Team Captain (if any).

## 5.4.0 Competition Preparation

All people that fill a role in the competition have to be ready at least 10 minutes before the start of the competition to allow the referee to make the following preparations

- Competition Result Sheet: The referee obtains a competition result sheet along with a ball from the organizing committee. After the competition, the referee fills in the final score, collects the required signatures, and submits the sheet to the organizing committee.
- Choosing Team Colours: The referee asks the team captains about their preferred team colour (either blue or yellow). A sticker of the same colour will be given to teams to put on their drone.
- Game Kick-off: Schedule of teams to play will be announced on day 1 of the competition. Teams should be available as per their scheduled time.
- Designating Aircraft: The referee asks Aircraft Pilots to use only inspected aircraft.

## 6.0.0 Flying Coordination

### 6.1.0 Countdown to Start

The referees will determine when each team is ready to start. At that time, the Aircraft Pilot from each team will show a green card to indicate their team's readiness to begin the competition.

### 6.2.2 Fault

If a referee or judge notices premature actions or any other violation of the starting procedure, he or she may declare a Fault, and require a Restart.



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### 6.3.2. Timeouts

Any Referee can call for a Timeout to stop the competition. Teams must immediately stop movement. The subsequent actions of the Referees and ITechnoxian Officials will depend upon the circumstances that resulted in the Timeout.

## 7.0. Winning the Challenge (Game Play)

### 7.1.0. Pre-Game Setup

- The aircraft will be evaluated on various parameters such as design, construction, and innovation.
- Every aspect of the aircraft will be observed for scoring, which includes the connection of various parts, fixing of components, materials used, aeromodelling, etc

**Game Clock:** The game clock starts as soon as the referee commands the beginning of the round and stops as soon as the maximum access time (5 minutes) of that round elapses.

**Run Time:** Run time starts as soon as the game clock starts/the aircraft takes off and stops when the aircraft lands successfully.

**Flight Time:** The flight time will be the official time taken by each aircraft.

Flight Time = (Total Access Time for the Round) – (Run Time)

### 7.2.0. Round 1

Elimination Round – Launching and Landing of Aircraft:

- One team will be playing at a time. In this round, the team has to do a survey of the ground to gather information.
- Aircraft pilot can do a hand launch or can use a launch pad within a 5-meter stretch.
- Only one hand is permitted for launch. Aircraft pilot must remain inside the launch zone.
- Team will be given a maximum of 3 minutes for pre-flight checks and launch.
- The RC Aircraft must remain airborne. The challenge is to take off from a specific location and land within the boundary of a predetermined circular landing spot in the minimum time possible and before the access time elapses.
- The top 25 teams to complete the circuit with the best timings will move to the final round.



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### 7.3.0 Final Round (5 min)

#### AIRCRAFT PRIX

- Maximum of two attempts to complete the challenge.
- Aircraft pilot has to complete the circuit without avoiding hurdles placed in the Flying Zone.
- Points will be awarded for maneuvering through hurdles and time taken to complete the circuit. Stability and Pilot's control ability will also be judged.
- Negative points will be awarded for crashes.
- The team completing the circuit in the minimum time frame and scoring the maximum points will be nominated as the winner of the competition.

### 7.6.0 Radio Control

#### Radio Control Requirements:

Radio systems MUST NOT cause interference to other frequency users. At the aircraft, only the 2.4GHz DSS (Digital Spread Spectrum) frequencies are allowed. Radio telemetry is permitted on 433MHz and 2.4GHz.S

## 8.0. General Rules of Tournament

### 8.1.0. Prohibited Activities:

Technoxian expects all competitors to act in a safe and legal manner. The actions of a single team member may be grounds for disqualification or expulsion of the entire team. The following activities are prohibited; violation of any of these terms may result in competitor and/or team disqualification, as determined by Technoxian and/or Producer in their sole and absolute discretion:

- **Unruly Behavior:** Fighting, belligerence, threat of physical violence or other unruly behavior, including abusive physical contact with any Technoxian Official, will not be tolerated and can result in the immediate expulsion of the offending team member's entire team from the tournament.
- **Vehicles in Pit Areas:** Scooters, bicycles, skateboards, skates and similar vehicles cannot be used in any of the Pit Areas. In addition, powered vehicles such as Segways, hoverboards or powered scooters cannot be used or stored in the Pit Areas. The only exceptions are wheelchairs (manual and powered) occupied by disabled persons, and vehicles used by authorized personnel for tournament operations.
- **Running and Playing:** Running in the Pit Area, except in an emergency, is not allowed. Running while carrying a charged pneumatic tank, or any sharp or otherwise dangerous part, may result in the revoking of the Pit Pass of the offender.



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### Prohibited Conduct (Continued)

- **Team Property:** No team member may deliberately touch, handle, or otherwise come in contact with any aircraft, parts, tools, or other equipment belonging to another team, without the explicit verbal authorization from a member of the other team.
- **Smoking:** Use of either tobacco products, nicotine vapor devices (e-cigarettes), or similar non-nicotine delivery devices is specifically prohibited in any of the Pit Areas, and in any other indoor or nearby outdoor area that is marked as "No Smoking."
- **Alcohol Use:** No alcohol may be consumed at the Tournament by any team member at any time. In addition, no alcoholic beverage may be brought into any of the Pit Areas. A team member under the influence of alcohol is not allowed in any of the Pit Areas and cannot participate in any activity involving the preparation, transport, or operations at the Tournament.
- **Illegal Drugs:** No possession of illegal drugs or other substances or any use there of will be tolerated at any time or place during the entire production, on camera or off. Penalty is immediate dismissal of the entire team of the offender from the competition and program.
- **Lasers:** Deliberate pointing of any laser at any other person at the Tournament will not be tolerated and may result in the immediate expulsion of the offending team member's entire team from the Tournament.
- **No Pets:** No pets of any kind are allowed anywhere at the Tournament. The only exception is a certified service dog being used to assist a disabled person.

### 8.2.0 Prizes

- **Prize Format:** The winner of the Tournament will be awarded cash prizes, certificates, and trophies. Technoxian reserves the right to make changes to the total prize pool amount and or the prize pool allocation prior to the commencement of the Tournament.
- **Prize Forms:** Each team member will be required to fill out and sign their team's "Team Member Prize & Allocation Form" prior to the commencement of the Tournament. This form specifies how that team wants its prizes (if any) allocated among all team members. Only team...



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### **8.3.0. Rule Changes During Competition:**

Rule changes between years can have unforeseen consequences. If a rule is found to cause significant negative impact to the competition, the rules may be adapted under the following conditions:

- Only between phases of the competition
- Only for major problems, as a last resort

The change must be approved by all team leaders (by an unanimity vote)

### **8.4.0. Final Authority:**

TechnoXian organizer shall have final authority over the interpretation and application of all Rules and decisions regarding the Rules shall be made by TechnoXian in their sole and absolute discretion. Decisions by TechnoXian in regards to the interpretation and application of the Rules, the Tournament and the Program shall be final and not subject to challenge or appeal.

### **Notice:**

**These Design Rules may change at any time with or without specific notice to you. Any changes made to these rules will be noted in a revised Design Rules document with a higher Rev number. You acknowledge and agree that it is your responsibility to read, understand, and comply with any and all rules provided herein or otherwise by TechnoXian. It is strongly encouraged that you check these Design Rules often for any changes that may affect your design, build, and/or ability to compete in the Tournament. TechnoXian reserves the right to remove any team from the Tournament at any time for any reason (including, without limitation, failure to meet safety and/or technical requirements) in its sole and absolute discretion.**